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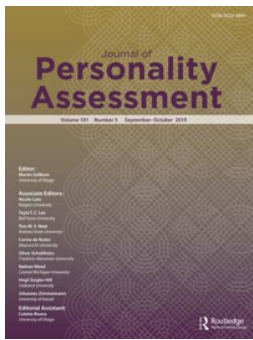
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## Factor Structure and Construct Validity of the Levenson Self-Report Psychopathy Scale (LSRP): A Replication and Extension in Dutch Nonclinical Participants

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### ABSTRACT

The Levenson Self-Report Psychopathy (LSRP) scale is widely used to assess psychopathic traits in noninstitutionalized samples. Recent studies suggest that a three-factor structure measuring Egocentricity, Callousness, and Antisocial factors outperformed the original two-factor structure of the LSRP. This study replicated and extended these findings by examining the factor structure and construct validity of a Dutch version of the LSRP in a community sample ( $N = 856$ , subsamples ranging between 140 and 572 participants). Confirmatory factor analysis results corroborated the superiority of the three-factor model of the LSRP, using 19 of the 26 LSRP items. Limitations included the need to specify correlated residuals for some indicators, although these were largely in line with prior studies. Across three subsamples, we found evidence for construct validity of the LSRP subscales. Egocentricity and Antisocial showed a pattern of differential associations with external correlates in accordance with theoretical expectations. Callousness shared some correlates with Egocentricity, others with Antisocial, and uniquely predicted low morality and high physical aggression. Few exceptions to the hypothesized associations were observed, mostly concerning Callousness. Overall, the LSRP three-factor model received further support in a Dutch sample, and is thus recommended in future research, possibly adding items to improve the performance of the Callousness factor.

### ARTICLE HISTORY



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The construct of psychopathy is characterized by a constellation of behavioral patterns and inferred personality traits that are considered pejorative and undesirable by society (Hare, 1999). Psychopathy encompasses dysfunctions that range across interpersonal (e.g., manipulation, dominance), affective (e.g., callousness, lack of empathy), and behavioral domains (e.g., impulsivity, antisocial tendencies), and seems to be a strong predictor of aggressive and violent behavior, general and violent recidivism, and substance misuse (Hare & Neumann, 2008; Lilienfeld, Latzman, Watts, Smith, & Dutton, 2014; Patrick, Fowles, & Krueger, 2009; Vitacco, Neumann, & Jackson, 2005). As such, psychopathy is among the most widely studied individual differences constructs in the forensic and correctional fields (DeLisi & Vaughn, 2015). The development of the Psychopathy Checklist and its further revisions (PCL-R; Hare, 2003) led to an exponential growth in the study of psychopathy in the forensic and correctional fields. Nevertheless, there is consistent evidence that psychopathic traits are continuously distributed in community samples as well, with striking similarities in the nomological network surrounding psychopathy across different populations (Colins, Fanti,


Salekin, & Andershed, 2016; Lilienfeld et al., 2014; Vitacco et al., 2005).

Because the assessment and scoring of the PCL-R requires extensive training, a thorough interview, gathering of collateral information, and clinical experience, several self-report measures have been developed to assess psychopathic traits in situations where the use of the PCL-R is not feasible (Lilienfeld & Fowler, 2006; Sellbom, Lilienfeld, Fowler, & McCray, 2018). The first published self-report questionnaire to assess psychopathic traits in community samples was the 26-item Levenson Self-Report Psychopathy scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995). Despite some inevitable imperfections, the LSRP is still one of the most widely used self-report measures of psychopathy, as evidenced by a steady increase in citations over the years (e.g., from 34 citations in 2010 to 63 citations in 2016, based on Web of Science).

The LSRP was developed as a multidimensional measure of psychopathic traits based on Karpman's (1948) distinction between primary and secondary psychopathy. In this approach, primary psychopaths were callous, manipulative, selfish, and deceptive individuals, whose antisocial behavior was a deliberate choice made "on the basis of judgments

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that typify psychopathic thinking” (Levenson et al., 1995, p. 151). In contrast, secondary psychopaths were defined as neurotic individuals whose antisocial behavior was triggered by an emotional disorder mostly expressed as extreme impulsivity. According to Levenson et al. (1995), these primary and secondary types were conformable with the two factors of the original PCL (assessing interpersonal/affective features, and antisocial/lifestyle features, respectively), but this parallelism does not come without conceptual confusion. Indeed, the different dimensions captured by measures like the LSRP or the PCL–R reflect the latent structure of such measures based on covariance patterns among measured variables (Hare, 2003; Levenson et al., 1995). Conversely, the primary versus secondary distinction was based on a person-centered approach that distinguishes individuals based on their levels of psychopathic traits across domains. It turns out that—when examining profiles of individuals resembling the primary psychopathy type—they tend to score high on levels of psychopathic traits across dimension; that is, including interpersonal, affective, lifestyle, and antisocial traits (Mokros et al., 2015).

A distinctive feature of the LSRP is that its items do not contain any explicit reference to overt antisocial behavior. This feature is not to imply that Levenson et al. (1995) considered antisociality as not being part of the psychopathy construct. However, it makes it easier to evaluate associations with measures of antisocial behavior without criterion contamination, and avoid the risk of excessively skewed data in community samples due to very little variation of antisocial behavior in these populations. Despite these conceptual issues, in the original validation study of the LSRP, the two LSRP subscales showed associations with external correlates consistent with Levenson et al.’s (1995) theoretical expectations. Specifically, Levenson et al. (1995) formulated three main hypotheses, which were supported by the data: first, that psychopathy scores would be related to antisocial behavior; second, that psychopathy scores would not be related to indexes of fearlessness or adventurousness; and third, that state anxiety would be positively related to secondary psychopathy, but unrelated to primary psychopathy. In more recent studies, the LSRP scales have shown adequate construct validity, as expected for scales aligned to the two factors of the PCL (Miller, Gaughan, & Pryor, 2008; Salekin, Chen, Sellbom, Lester, & MacDougall, 2014; Tsang, Salekin, Coffey, & Cox, 2017).

Despite the evidence of the construct validity of the two factors of the LSRP, in recent years increasing evidence has shown that the proposed two-factor structure of the LSRP did not demonstrate adequate indexes of model fit in confirmatory factor analyses (CFAs; Brinkley, Diamond, Magaletta, & Heigel, 2008). Research on self-report psychopathy using the LSRP has recently been reinvigorated by studies showing that 19 of the original 26 LSRP items could be best modeled in a three-factor structure. The remaining seven items of the original 26 item-pool did not load clearly on any factor and were therefore not included in the final model. These three factors capture interpersonal manipulation and antagonism (labeled Egocentricity), callousness and lack of empathy or remorse (labeled Callousness), and an angry and impulsive

attitude toward life (labeled Antisocial), respectively. These three LSRP factors usually yield adequate estimates of internal consistency (at least using interitem correlation, whereas alpha coefficients for the Callousness and Antisocial factors often fall below .70; Sellbom, 2011). Besides providing evidence of better fit to the data in a variety of studies across various countries (Brinkley et al., 2008; Christian & Sellbom, 2016; Sellbom, 2011; Shou, Sellbom, & Han, 2017; Somma, Fossati, Patrick, Maffei, & Borroni, 2014; Wang et al., 2018), the three-factor structure of the LSRP provides the advantage of better aligning with contemporary conceptualizations of psychopathy, by partitioning the theoretically central features of psychopathy in two factors that distinguish interpersonal and affective traits, instead of conflating them in one factor (e.g., primary psychopathy, or the original PCL–R Factor 1). Indeed, the interpersonal and affective features of psychopathy are typically assessed separately in most psychopathy measures, and show conceptually meaningful distinctions in their nomological networks (Cooke & Michie, 2001; Hare & Neumann, 2008; Hoppenbrouwers, Neumann, Lewis, & Johansson, 2015; Neumann, Vitacco, & Mokros, 2016; Sellbom, 2011; Sellbom et al., 2018).

Despite the superiority of the LSRP three-factor model in terms of model fit, there are still only a few studies examining its nomological network. Most of them have been conducted using North American samples, calling into question the generalizability of findings in different cultures. In short, these studies have provided some compelling evidence of adequate construct validity, especially for the Egocentricity and Antisocial subscales (for a review, see Sellbom et al., 2018). Across college and correctional samples, Egocentricity has reported expected associations with low agreeableness and meanness, as well as with other components of the dark triad, such as narcissism and Machiavellianism. Further, the Antisocial factor has been related to greater levels of impulsivity, a more extensive history of antisocial and violent behavior, and indexes of negative emotionality and emotion dysregulation (see Christian & Sellbom, 2016). However, the Callousness factor has produced somewhat less consistent evidence of adequate construct validity (e.g., Salekin et al., 2014). Although the Callousness scale has been related to lack of empathy and guilt, and coldheartedness, some of these associations are often weaker than expected (Salekin et al., 2014). Moreover, there has been inconsistent evidence suggesting that Callousness was positively associated with neuroticism, which is in contrast with Levenson et al.’s (1995) conceptual framework (Sellbom et al., 2018).

Due to these limitations in the construct validity of the Callousness scale, some authors have advised that it might still be preferable to use the original two-factor model of the LSRP despite its poorer fit (Salekin et al., 2014). Other investigators have successfully proposed the addition of new items to improve the psychometric performance of the LSRP in general, and of the Callousness scale in particular (Christian & Sellbom, 2016). However, considering that the original LSRP is still vastly used worldwide, thanks to its availability in several languages (Chabrol, Labeyrie, Rodgers, & Levenson, 2010; Garofalo, Bogaerts, & Denissen, 2018; Shou

et al., 2017; Somma et al., 2014; Uzieblo, Verschuere, & Crombez, 2006; Verschuere et al., 2014; Wang et al., 2018), further scrutiny of the model fit and construct validity of the three-factor structure of the LSRP seems warranted, before its use can be discouraged. For instance, in a recent study, the Chinese translation of the LSRP has yielded promising results in terms of measurement invariance and construct validity of its three-factor structure (Shou et al., 2017), hence renovating its status as an efficient self-report measure of psychopathic traits. However, it should be noted that, although better than the two-factor structure, the model fit indexes reported by Shou et al. (2017) were also suboptimal.

In an effort to expand current knowledge on the performance of the LSRP across countries and cultures, this study sought to examine the factor structure and construct validity of a Dutch version of the LSRP in a community sample. Specifically, we first compared the fit of the two- and three-factor models, hypothesizing that the three-factor model would represent the best factor solution. Next, we sought to replicate and extend prior findings on its construct validity, testing its associations with other measures of psychopathy and other personality disorders (i.e., narcissistic, and borderline); basic personality traits; impairment in personality functioning; social desirability; morality and moral disengagement; and antisocial behavior. To further extend the nomological network of the LSRP, we also examined associations with other constructs that have conceptually been related to psychopathy, but have received little empirical scrutiny in relation to the LSRP, such as attitudes toward infidelity, altruism, and heroism (Miller et al., 2011; Smith, Lilienfeld, Coffey, & Dabbs, 2013).

The conceptually expected associations between the construct examined and the unique variance in LSRP scales (i.e., controlling for their shared variance) are displayed in Table 1. These were based on Levenson et al.'s (1995) theoretical framework and on subsequent studies on the nomological network of psychopathy factors (e.g., Hare & Neumann, 2008; Ray et al., 2013; Salekin et al., 2014; Sellbom, 2011). Our analyses in relation to heroism were largely exploratory, because only one study that we were aware of had examined its association with psychopathy, and specific predictions are therefore not included in Table 1. Indeed, even though Smith et al. (2013) documented a significant positive association between psychopathic traits and heroic actions (Smith et al., 2013), Levenson et al. (1995) explicitly stated that no association was expected between LSRP-assessed psychopathy and physical adventurousness and fearlessness.

## Method

### Participants and procedures

The sample consisted of 856 community participants (45.7% male) with an average age of 37.02 years ( $SD = 16.63$ , range = 18 – 90 years). Educational background was relatively varied among participants, with a small group only completing elementary school (1.5%), over one third having a high school degree (36.8%), and 20.6%, 27.9%, and 13.2% indicating having a lower or higher vocational education or university degree, respectively. Almost all participants had

**Table 1.** Overview of expected associations (or lack thereof) between the three scales of the Levenson Self-Report Psychopathy (LSRP) three-factor model and external criteria included in this study.

Measure	Scale	Egocentricity	Callousness	Antisociality
SRP-III	Interpersonal facet	+		
	Affective facet		+	
	Lifestyle facet			+
	Antisocial facet			+
PNI	Grandiose narcissism	+		
	Vulnerable narcissism			+
MSI-BPD	Borderline PD			+
TIPI	Openness			
	Conscientiousness			–
	Extraversion			
	Agreeableness	–		–
SIPP-SF	Emotional stability			–
	Self-control			–
	Identity integration			–
	Responsibility			–
MCSDS	Social concordance	–	–	–
	Relational capacities	–	–	–
MDS	Social desirability	–	–	–
IPIP	Moral disengagement	+	+	+
IPIP/SRAS	Morality	–	–	–
STAB	Altruism	–	–	–
	Physical aggression		+	+
	Social aggression	+		
AIS	Rule breaking	+		+
	Attitudes toward infidelity	+	+	

*Note.* SRP-III = Self-Report Psychopathy Scale; PNI = Pathological Narcissism Inventory; MSI-BPD = MacLean Screening Instrument for Borderline Personality Disorder; TIPI = Ten-Item Personality Inventory; SIPP-SF = Severity Indices of Personality Problems–Short Form; MCSDS = Marlowe–Crowne Social Desirability Scale; MDS = Moral Disengagement Scale; IPIP = International Personality Item Pool; SRAS = Self-Report Altruism Scale; STAB = SubTypes of Antisocial Behavior; AIS = Attitudes toward Infidelity Scale. + = significant positive association was expected. – = significant negative association was expected. Blank cells indicate that null relations were expected. These predictions were based on  $\beta$  coefficients from multiple regression analyses (i.e., when the shared variance among LSRP factors was controlled for).

Dutch nationality (95.3%) and all of them were residing in the Netherlands at the time of the investigation. The data were collected between 2014 and 2016. To be able to expand on the nomological network, the LSRP was administered across all assessment times and the assessment of convergent and discriminant measures changed approximately every year. For this reason, sample sizes in the analyses might vary. Data collection procedures were the same in all cases. Participants were approached through convenience sampling. A total of 34 bachelor's- or master's-level psychology students recruited participants among their acquaintances (e.g., neighbors, colleagues, friends, etc.), each recruiting approximately 25 participants. As the only inclusion criteria, all participants had to be at least 18 years old and have sufficient knowledge of the Dutch language. To the extent possible, students were instructed to select participants taking into account their age, gender, and level of education to approach a reasonable representation of the Dutch population. All participants signed an informed consent form after being introduced to the aim of the study, and all participated voluntarily. To ensure anonymity, after completion, questionnaires were returned to the principal investigators in a sealed envelope. Participants were assured that they could withdraw from the study at any time and have their responses removed from the database on request. The local university ethics review board approved the study.



## Measures

For all measures, internal consistency ( $\alpha$ ) coefficients are reported in Table 2.

### Levenson Self-Report Psychopathy scale

The LSRP (Levenson et al., 1995; Dutch translation from Uzieblo et al., 2006) is a 26-item self-report questionnaire to measure psychopathic traits. The LSRP items are scored on a 4-point Likert scale ranging from 1 (*completely disagree*) to 4 (*completely agree*). Higher scores indicate a higher level of psychopathic traits. Some items are reversed to control for response sets.

### Self-Report Psychopathy scale

The Dutch version (Gordts, Uzieblo, Neumann, Van den Bussche, & Rossi, 2017) of the Self-Report Psychopathy scale (SRP; Paulhus, Neumann, & Hare, 2016) was used for construct validity. When it was administered, the SRP items went under the name SRP-III, but the scale has now been published with the name SRP-4, although all items remain identical. The SRP is a 64-item scale measuring psychopathy on four factors: interpersonal, affective, lifestyle, and

antisocial. The SRP can be scored on a 5-point Likert scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*) with a higher score indicative of higher levels of psychopathic traits. Research has indicated that the SRP has a stable four-factor structure and acceptable internal consistency for the subscale and total scores, ranging from  $\alpha = .67$  to  $.90$  (Gordts et al., 2017).

### Pathological Narcissism Inventory

The Pathological Narcissism Inventory (PNI-NL; Rossi et al., 2012) is the Dutch translation of the PNI-52 (Pincus et al., 2009), a questionnaire containing 52 items that measures narcissistic personality traits on a 6-point Likert scale ranging from 0 (*not at all like me*) to 5 (*very much like me*). The PNI-NL assesses two dimensions of pathological narcissism, which consist of seven lower order factors. The first dimension, grandiose narcissism, consists of exploitativeness, grandiose fantasy, and self-sacrificing self-enhancement. The second dimension, vulnerable narcissism, contains the factors hiding the self, devaluing, entitlement rage, and contingent self-esteem. Internal consistency of the two dimensions and total score are generally good ( $\alpha > .84$ ; e.g., Pincus et al., 2009; Wright, Lukowitsky, Pincus, & Conroy, 2010).

**Table 2.** Correlation and regression results of Levenson Self Report Psychopathy (LSRP) scale scores with external criteria.

Measure	N	$\alpha$	M	SD	Scale	$R^2_{adj}$	Egocentricity		Callousness		Antisociality		Total score
							r	$\beta$	r	$\beta$	r	$\beta$	
SRP-III	144	.83	2.29	.55	Interpersonal facet	.28***	.53***	.46***	.31***	ns	.25**	ns	.56***
	144	.73	2.18	.46	Affective facet	.27***	.53***	.47***	.26**	ns	.25**	ns	.54***
	144	.73	2.48	.50	Lifestyle facet	.34***	.50***	.34***	.28**	ns	.46***	.31***	.62***
	144	.71	1.35	.40	Antisocial facet	.19***	.39***	.33***	.33***	.22*	.10	ns	.42***
	144	.90	2.08	.37	Total score	.42***	.62***	.52***	.37***	.16*	.35***	ns	.69***
PNI	144	.89	2.08	.79	Grandiose narcissism	.18***	.37***	.33***	.06	ns	.31***	.20*	.39***
	144	.94	1.61	.74	Vulnerable narcissism	.31***	.34***	.20*	.01	ns	.54***	.48***	.43***
MSI-BPD	144	.76	.21	.23	Borderline PD	.22***	.11	ns	.05	ns	.48***	.51***	.27**
TIPI	140	.57 <sup>a</sup>	5.09	1.34	Openness	ns	-.10	ns	-.10	ns	.12	ns	-.05
	140	.44	5.51	1.14	Conscientiousness	.17***	-.16	ns	-.23**	-.19*	-.40***	-.39***	-.32***
	140	.74	4.76	1.58	Extraversion	ns	-.08	ns	-.15	ns	.03	ns	-.09
	140		2.60	1.22	Agreeableness:	ns	.13	ns	.10	ns	-.05	ns	.10
					Critical/Quarrelsome [R] <sup>a</sup>								
	140		5.74	1.14	Agreeableness:	.16***	-.36***	-.24*	-.30***	-.20*	-.25**	ns	-.41***
					Sympathetic/Warm <sup>a</sup>								
	140	.62	5.29	1.38	Emotional stability	.13***	-.09	ns	.01	ns	-.38***	-.40***	-.20*
SIPP-SF	572	.85	43.97	5.50	Self-control	.31***	-.33***	-.10*	-.24***	-.13**	-.53***	-.47***	-.46***
	572	.88	43.19	5.64	Identity integration	.18***	-.25***	ns	-.18***	-.09*	-.41***	-.36***	-.35***
	572	.87	41.37	5.64	Responsibility	.34***	-.40***	-.17***	-.30***	-.17***	-.52***	-.42***	-.52***
	572	.83	40.55	5.26	Social concordance	.37***	-.30***	-.17***	-.21***	-.11*	-.34***	-.26***	-.57***
	572	.81	40.13	5.94	Relational capacities	.16***	-.46***	-.25***	-.34***	-.19***	-.50***	-.38***	-.37***
MCSDS	140	.81	.50	.17	Social desirability	.18***	-.21*	ns	-.28**	-.23**	-.39***	-.36***	-.36***
MDS	144	.89	1.62	.33	Moral disengagement	.28***	.52***	.53***	ns	ns	.27**	ns	.49***
IPIP	144	.66	4.32	.39	Morality	.36***	-.57***	ns	-.32***	-.46***	-.39***	-.19**	-.65***
	144	.77	4.19	.41	Altruism	.14***	-.33***	-.23*	-.15	ns	-.32***	-.23**	-.40***
SRAS	144	.84	2.73	.51	Altruistic acts	ns	-.09	ns	.06	ns	-.05	ns	-.05
STAB	144	.83	1.73	.51	Physical aggression	.14***	.37***	ns	.16	.31**	.27**	ns	.41***
	149	.82	1.85	.41	Social aggression	.11***	.16	ns	.06	ns	.35***	.24***	.27**
	149	.62	1.15	.19	Rule breaking	.10**	.27**	ns	.21*	ns	.22**	ns	.34***
AIS	144	.69	2.29	.67	Attitudes toward infidelity	.04*	.21*	ns	.21*	ns	.06	ns	.24**
AFI	144	.54	1.31	.29	Heroism	ns	.09	ns	.14	ns	.12	ns	.16

Note. SRP-III = Self-Report Psychopathy Scale; PNI = Pathological Narcissism Inventory; MSI-BPD = MacLean Screening Instrument for Borderline Personality Disorder; TIPI = Ten-Item Personality Inventory; SIPP-SF = Severity Indices of Personality Problems-Short Form; MCSDS = Marlowe-Crowne Social Desirability Scale; MDS = Moral Disengagement Scale; IPIP = International Personality Item Pool; SRAS = Self-Report Altruism Scale; STAB = SubTypes of Antisocial Behavior; AIS = Attitudes toward Infidelity Scale; AFI = Activity Frequency Inventory. For ease of presentation, only significant  $\beta$  coefficients are reported. Hypothesized convergent relations ( $\beta$  coefficients) for LSRP factor scores appear in bold type (cf. Table 1).

<sup>a</sup>Critical/quarrelsome and sympathetic/warm are the two items of the TIPI Agreeableness scale. Because of the negative correlation between the two agreeableness items in this sample ( $r = -.15$ ), both items were included as single-item indicators for agreeableness.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

### **McLean Screening Instrument for Borderline Personality Disorder**

The Dutch translation (Verschuere & Tibboel, 2011) of the McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD; Zanarini et al., 2003) is a 10-item screening instrument for borderline personality disorder. Each item can be answered with yes or no. For total scores, all affirming answers must be summed, with higher scores being an indication of BPD symptomatology. Internal consistencies ( $\alpha$ ) of the MSI-BPD range from .74 to .90 across versions (Verschuere & Tibboel, 2011; Zanarini et al., 2003).

### **Ten-Item Personality Inventory**

The Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003) is a 10-item measure of the Big Five personality dimensions (i.e., Extraversion, Agreeableness, Conscientiousness, Emotional Stability, Openness to Experience) and consists of 10 items (two for each scale). Each item is preceded with the statement “I see myself as ... .” The degree to which the statements represent the respondents’ characteristics are answered using a 7-point Likert scale ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). The Dutch translation of the TIPI was used in this study (Hofmans, Kuppens, & Allik, 2008). Because of the negative correlation between the two agreeableness items in this sample ( $r = -.15$ ), we included both items as single-item indicators (i.e., Critical/Quarrelsome [reverse scored], and Sympathetic/Warm; see Table 2).

### **Severity Indices of Personality Problems–Short Form**

The Severity Indices of Personality Problems–Short Form (SIPP-SF) is a self-report questionnaire with 60 items to measure generic and changeable components of personality. It is the short form of the original SIPP, which showed evidence of good reliability and validity in both English and Dutch (Verheul et al., 2008). Participants are presented with statements about their attitudes toward different aspects of their lives and are instructed to respond referring to the past 3 months. The SIPP-SF consists of five domains, namely self-control (the capacity to tolerate, use, and control emotions and impulses), identity integration (ability to see one’s life as stable, integrated, and purposive), responsibility (the ability to set realistic goals, and to achieve these goals), relational capacities (the ability to genuinely care about others, to communicate personal experiences, and to engage with the experiences of others), and social concordance (the ability to value someone’s identity, withhold aggressive impulses toward others and work together with others). All items can be scored on a 4-point Likert scale ranging from 1 (*fully disagree*) to 4 (*fully agree*). Higher scores on SIPP-SF domains refer to more adaptive (and thus less pathological) capacities. The SIPP-SF has demonstrated good psychometric properties in its Dutch translation, which was used in this study (Rossi, Debast, & van Alphen, 2016).

### **Marlowe–Crowne Social Desirability Scale**

The Marlowe–Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960) is a self-report questionnaire consisting of 33 true–false counterbalanced items that measure the tendency to provide socially desirable responding. Higher scores on the MCSDS reflect a higher tendency to answer in a socially desirable way. However, there is increasing evidence that the MCSDS actually captures meaningful individual differences rather than a response bias (Uziel, 2010). Research has reported acceptable internal consistency ( $\alpha > .70$ ) for both the original version (Crowne & Marlowe, 1960) and the Dutch translation used in this study (Hermans, 1967). Crowne and Marlowe (1960) also found high test–retest reliability (i.e., .89).

### **Moral Disengagement Scale**

The Moral Disengagement Scale (MDS; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996) is a self-report questionnaire consisting of 32 items measuring moral disengagement; that is, the tendency to use psychological mechanisms to justify or not take responsibility for detrimental behavior. In this study, an adapted Dutch translation was used to fit the adult population (Jansen, Sijtsema, Klimstra, & Denissen, 2018). Furthermore, whereas the items in the original version of the MDS can be scored on a 3-point Likert scale, different adaptations have been used, which used different response scales. The Dutch translation employs a 4-point Likert scale, leaving no room for a neutral response, in line with the English version used in previous studies (e.g., Risser & Eckert, 2016). Higher scores on the MDS indicate a higher degree of moral disengagement. Eight different mechanisms of moral disengagement are categorized and together form a total score of moral disengagement, which was used in this study. The MDS has good internal consistency ( $\alpha > .80$ ; Bandura et al., 1996; Jansen et al., 2018).

### **Subtypes of Antisocial Behavior Questionnaire**

The Subtypes of Antisocial Behavior Questionnaire (STAB; Burt & Donnellan, 2009) is a 32-item self-report questionnaire measuring three subtypes of antisocial behavior, namely physical aggression (e.g., physically attacking others and bullying; 10 items), social aggression (i.e., indirect or relational aggression; 11 items), and rule-breaking (e.g., lying, vandalism; 11 items). The items can be scored on a 5-point Likert scale ranging from 1 (*never*) to 5 (*nearly all the time*). Higher scores on the STAB indicate a greater tendency to engage in antisocial behavior. The Dutch translation of the STAB was used in this study (Sijtsema, Lindenberg, Ojanen, & Salmivalli, 2017). Internal consistency ( $\alpha$ ) of the STAB can be considered satisfactory ( $> .77$ ; Burt & Donnellan, 2009; Sijtsema et al., 2018).

### **Attitudes toward Infidelity Scale**

The Attitudes toward Infidelity Scale (AIS; Whatley, 2006) is a 12-item questionnaire that assesses the participant’s

attitudes toward infidelity. The participants responded to a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores indicate a greater acceptance of infidelity. Jackman (2015) reported a reliability of  $\alpha = .80$  for the AIS total score. The AIS was translated into Dutch for the purpose of this study.

### Self-Report Altruism Scale

The Self-Report Altruism Scale (SRAS; Rushton, Chrisjohn, & Fekken, 1981) is a 20-item scale on which respondents rate the frequency of engaging in everyday altruistic behavior on a scale from 1 (*never*) to 5 (*very often*). A higher score on the SRAS means more altruistic behavior. Research has shown good internal consistency ( $\alpha \geq .78$ ) for the original version and for the Dutch version used in this study (De Backer, Fisher, Poels, & Ponnet, 2015).

### Activity Frequency Inventory

The Activity Frequency Inventory (AFI; Lilienfeld, 1998) is a 30-item questionnaire designed to measure acts of “everyday heroism” that are relatively common in the general population. In the questionnaire, heroism is operationalized as the performance of prosocial actions that appear to involve some level of either physical or social risk. Participants are asked to rate the number of times they have engaged in the listed behavior. The items are then recoded into a 5-point scale based on the numbers reported as follows: 0 = 1, 1 = 2, 2–3 = 3, 4–5 = 4, 6 or higher = 5. To control for response bias, the questionnaire contains a validity index comprising (a) four highly implausible actions (e.g., “pulling someone from the jaws of a shark”), and (b) a question regarding urban living. Recent studies have indicated that the AFI has acceptable internal consistency (Smith et al., 2013). To match the native language of the participants, the questionnaire was translated into Dutch using forward and backward translation and input from the original author.

### Altruism and Morality subscale of the International Personality Item Pool

To measure altruism and morality, we also used a selection of the items of the subscales Altruism and Morality as listed in the International Personality Item Pool (IPIP; Goldberg et al., 2006). Items from the subscales of the IPIP were selected—based on agreement—to best fit the constructs Altruism (10 items) and Morality (17 items), and then translated into Dutch. All items can be scored on a 5-point Likert scale ranging from 1 (*very inaccurate*) to 5 (*very accurate*). To increase the probability of valid responding, both subscales are alternating between positively and negatively keyed items.

### Data analysis

CFA with robust weighted least squares (WLSMV) estimation was conducted in *Mplus* 7.2 (Muthén & Muthén, 2013). The WLSMV method was chosen as more appropriate to

**Table 3.** Confirmatory factor analysis model fit indexes for tested models.

	$\chi^2$	df	p	RMSEA	95% CI LL	95% CI UL	Close fit p	CFI	TLI
Model 1	1463.347	298	<.0001	.068	.064	.071	<.001	.814	.797
Model 2	1059.089	294	<.0001	.055	.052	.059	<.01	.878	.865
Model 3	690.201	149	<.0001	.065	.060	.070	<.001	.886	.869
Model 4	644.204	147	<.0001	.063	.058	.068	<.001	.895	.878
Model 5	428.281	145	<.0001	.048	.043	.053	.751	.940	.930

Note.  $N = 856$ . RMSEA = root mean square error of approximation; CI = confidence interval; LL = lower limit; UL = upper limit; CFI = confirmatory fit index; TLI = Tucker–Lewis Index. Model 1 = original two-factor model (Levenson et al., 1995). Model 2 = original two-factor model, respecified. Model 3 = Brinkley et al.’s (2008) three-factor model. Model 4 = Brinkley et al.’s (2008) three-factor model, as respecified in Sellbom (2011). Model 5 = Sellbom (2011) three-factor model, respecified. An item-mapping matrix is reported in Supplemental Table S1.

model ordered categorical indicators. Because chi-square ( $\chi^2$ ) statistics are heavily influenced by sample size, model fit was mainly evaluated using the confirmatory fit index (CFI), the Tucker–Lewis Index (TLI), and the root mean square error of approximation (RMSEA). In keeping with Kline’s (2015) guidelines, CFI and TLI values greater than .90 and RMSEA values up to .08 were considered indicative of acceptable fit. Similarly, Brown’s (2015) recommendations posit that CFI and TLI values between .90 and .95 indicated adequate fit, whereas values above .95 indicated good fit, and values below .90 indicated poor fit. For the RMSEA, Brown (2015) suggested that values above 1.0 indicate that the model should be rejected, and those below 0.06 indicate good fit. Finally, Little (2013) suggested that values as low as .85 for CFI and TLI suggest “mediocre” fit, especially because it is difficult for item-level correlations to improve substantially on a null model (e.g., Marsh, Hau, & Grayson, 2005). The following factor models of the LSRP were first tested in this study: the original two-factor structure proposed by Levenson et al. (1995; Model 1 in Table 3); Brinkley et al.’s (2008) three-factor model (Model 3 in Table 3); and Sellbom’s (2011) respecification of Brinkley et al.’s (2008) three-factor model (Model 4 in Table 3). Although the two-factor model includes all 26 LSRP items, the three-factor model includes only 19 of the 26 LSRP items. An item-mapping table for each model is reported in Supplemental Table S1 for interested readers. Because initial CFA models rarely achieve acceptable fit, respecification of both models was conducted following Kline’s (2010) recommendation (see also Sellbom, 2011). Specifically, the modification indexes were inspected, and correlated residuals were selected based on the following criteria: (a) indicators’ correlated residuals had to load on the same factor, and (b) indicators had to share conceptually systematic variance, which is unlikely to be accounted for by the latent factor. The same procedures were applied to respecify both the two- and three-factor models (Model 2 and 5 in Table 3, respectively), and correlated residuals selected for the final model are shown in Table 4. After identifying the best fitting model, internal consistency, average interitem correlation, and latent correlations among factors were calculated. Next, descriptive statistics and internal consistency coefficients were computed for all study variables. Finally, Pearson’s product-moment correlations and multiple regression



**Table 4.** Standardized factor loadings, mean, standard deviation, and latent correlations for the Levenson Self-Report Psychopathy (LSRP) scales.

Factor	Item	Factor loading	
		$\lambda$	SE
Egocentricity	In today's world, I feel justified in doing anything I can get away with to succeed. <sup>a</sup>	.531	.034
	My main purpose in life is getting as many goodies as I can. <sup>b</sup>	.507	.031
	I enjoy manipulating other people's feelings	.696	.036
	I tell other people what they want to hear so that they will do what I want them to do.	.588	.029
	For me, what's right is whatever I can get away with. <sup>a</sup>	.608	.030
	Success is based on survival of the fittest; I am not concerned about losers.	.735	.025
	Making a lot of money is my most important goal. <sup>b</sup>	.550	.029
	I let others worry about higher values; my main concern is with the bottom line.	.622	.035
	I often admire a really clever scam.	.518	.032
	People who are stupid enough to get ripped off usually deserve it.	.624	.034
Callousness	Even if I were trying very hard to sell something, I wouldn't lie about it. [R]	.508	.043
	Cheating is not justified because it is unfair to others. [R]	.710	.041
	I feel bad if my words or actions cause someone else to feel emotional pain. <sup>c</sup> [R]	.474	.049
	I make a point of trying not to hurt others in pursuit of my goals. <sup>c</sup> [R]	.572	.046
Antisociality	I am often bored.	.585	.043
	I quickly lose interest in tasks I start.	.580	.044
	I have been in a lot of shouting matches with other people. <sup>d</sup>	.706	.060
	I find myself in the same kinds of trouble time after time.	.571	.044
	When frustrated, I often let off steam by blowing my top. <sup>d</sup>	.221	.049

Note. All factor loadings are significant at  $p < .001$ . [R] indicates reverse-keyed items. Items with residuals that were allowed to correlate in model respecification are flagged with the same superscript (<sup>a</sup> and <sup>d</sup> were derived from Sellbom [2011], and <sup>b</sup> and <sup>c</sup> were added in this study).

analyses were conducted to examine associations between LSRP scales derived from CFA results and external correlates. In multiple regression analyses, each criterion variable was regressed on the LSRP factors, entered simultaneously in the models to control for the shared variance among LSRP factors (i.e., including only the LSRP subscales identified in CFA and not the LSRP total score). Therefore, each of the rows in Table 2 summarizes one multiple regression model.

## Results

Table 3 shows the model fit indexes for the five models tested and described earlier. None of the three models initially tested (Model 1, 3, and 4) fit the data well. However, Model 4 (i.e., Sellbom's [2011] respecification of Brinkley et al.'s [2008] three-factor model, which included 19 of the original 26 LSRP items) demonstrated a relatively better fit, although it was still suboptimal in terms of conventional model fit criteria. The respecified three-factor model comprising 19 of the 26 LSRP items (Model 5) showed acceptable fit.<sup>1</sup> Conversely, respecification of the original two-factor model (Model 2) did not yield adequate fit. Model 2, 4, and 5 all included correlated residuals. Specifically, in Model 4 we allowed two pairs of error terms to covary as indicated in the original study (Sellbom, 2011). In the model that was eventually selected, four pairs of error terms were allowed to covary, following the same principles (see Table 4

and Table S1 for details).<sup>2</sup> Finally, we also let four pairs of error terms covary in respecifying Levenson et al.'s (1995) two-factor model, by adopting the same decision rules (see Data Analysis section), to provide a fair comparison with the respecified three-factor model. Standardized factor loadings for the items of the three-factor model are displayed in Table 4. All items had factor loadings greater than .40, except one (i.e., "When frustrated, I often let off steam by blowing my top," with a standardized loading of .221). The latent correlations among factors were .62 (Egocentricity and Callousness), .60 (Egocentricity and Antisocial), and .39 (Callousness and Antisocial). Based on CFA results, scores on the three factors were calculated by averaging scores on the individual items. Means were 1.67 ( $SD = .47$ ), 1.74 ( $SD = .56$ ), and 1.70 ( $SD = .47$ ) for Egocentricity, Callousness, and Antisocial, respectively. Internal reliability alpha coefficients were .79 (total score and Egocentricity subscale), .56 (for Callousness), and .52 (for Antisocial). Because shorter scales are substantially penalized in terms of internal reliability, we also inspected average interitem correlations of the three subscales. These were .27 (Egocentricity), .24 (Callousness), and .19 (Antisocial), therefore falling within an acceptable range (Clark & Watson, 1995).

Table 2 shows descriptive statistics and internal consistency coefficients for all study variables. Notably, average levels of psychopathy in this sample were comparable with those reported in the Dutch validation study of the SRP (Gordts et al., 2017), with no significant differences on any of the SRP scales noted. Internal consistency was acceptable (i.e.,  $\alpha > .70$ ) for the majority of scales. A few exceptions concerned the IPIP morality scale, the STAB rule breaking scale, and the AFI heroism scale. For the TIPI scales, which

<sup>1</sup>Although data collection followed the same procedures and targeted the same population, our sample was recruited over a period of approximately 3 years (i.e., data were collected by students enrolled in three subsequent academic years). Therefore, one could argue that the different rounds of data collection yielded three different samples rather than one larger sample. To address this potential concern, we repeated the CFA for the retained model controlling for the dependencies within each cluster of participants recruited from the same cohort of students. Results remained substantially unchanged, and model fit indexes were improved by controlling for possible dependencies,  $\chi^2(145) = 328.275$ ,  $p = .0001$ , RMSEA = .038 (95%CI [.033, .044]), CFI = .99, TLI = .99.

<sup>2</sup>Of note, two of them (those indicated by the superscripts a and d) were the same used in Sellbom's (2011) study, showing some evidence of replicability for these correlated residuals. Therefore, future studies are needed to examine the replicability of the two additional correlated residuals for the Dutch translation of the LSRP.

consisted of two items, interitem correlation coefficients are reported instead of  $\alpha$  coefficients. All TIPI scales but the extraversion scale had interitem correlation coefficients  $< .70$ , as expected for 2-item scales. **Table 2** also shows zero-order associations between LSRP total and scale scores and external criterion measures, as well as multiple regression results in which each criterion was regressed onto the three factor scores. The conceptually expected associations between the construct examined and the unique variance in LSRP scales (i.e., controlling for their shared variance) are displayed in **Table 2** in bold type (see **Table 1** for more details on the a priori hypothesized associations). The LSRP total score had moderate to large associations with SRP-assessed psychopathy total and factor scores, moderate associations with grandiose and vulnerable narcissism, and a relatively smaller association with borderline personality traits. Next, LSRP total score was negatively related to the conscientiousness and emotional stability scales of the TIPI, as well as with one of the two items measuring agreeableness (i.e., Sympathetic/Warm). The LSRP total score also showed moderate to large negative associations with the five domains of the SIPP-SF. Further, the LSRP total score had negative associations with social desirability, morality, and altruism (but not frequency of altruistic acts). Conversely, positive relations emerged between LSRP total score and moral disengagement, the three antisocial behavior scales, and attitudes toward infidelity. The stronger association was reported for the inverse relation with morality, whereas all other associations fell in the small-to-moderate range. Finally, no significant relations were found between LSRP total score and heroism.

Inspection of correlation and multiple regression analysis results revealed a pattern of differential associations between the three LSRP scales and external correlates, which was largely consistent with theoretical expectations, as shown in **Table 2**. Egocentricity was significantly related to the four psychopathy facets assessed with the SRP-III, and emerged as an independent predictor in all regression models, being the only significant predictor of the SRP interpersonal and affective facets. Egocentricity was also the main correlate of grandiose narcissism, low agreeableness (at least as assessed with the item Sympathetic/Warm), and moral disengagement.

In relation to SRP-III scales, the LSRP Antisocial scale made a significant contribution only in the model predicting the lifestyle facet, but did not predict scores on the antisocial facet. Further, the Antisocial factor was the main correlate of vulnerable narcissism, borderline traits, low conscientiousness, low emotional stability, problems in self- and interpersonal functioning (i.e., SIPP-SF scales), low social desirability, and social aggression.

Finally, Callousness was the strongest individual predictor of morality (negatively), and the only unique predictor of physical aggression (positively). Overall, the Egocentricity and Antisocial scales shared some correlates with similar magnitude, such as the SRP-III lifestyle facet, problems in interpersonal functioning (i.e., social concordance and relational capacities), and altruism. The Callousness scale shared some associations with Egocentricity (SRP-III antisocial

facet, low agreeableness, at least as assessed with the Sympathetic/Warm item), some with Antisocial (low conscientiousness, low social desirability), whereas some correlates were shared across the three LSRP scales (low social concordance and relational capacities).

## Discussion

This study aimed at replicating and extending recent findings on the factor structure and construct validity of the LSRP in a Dutch community sample. First, the preponderance of evidence suggested that—in line with an increasing number of studies—the 19-item three-factor model (Brinkley et al., 2008; Sellbom, 2011; Shou et al., 2017) represented the best way to model the internal structure of the LSRP items. Notably, model fit indexes, internal consistency coefficients, and intercorrelations among factors were largely consistent with those reported in prior studies (e.g., Brinkley et al., 2008; Sellbom, 2011). However, it is worth noting that, although better than in the alternative models, the three-factor model achieved adequate fit only when some error terms were allowed to covary, and the Callousness and Antisocial factors had relatively low internal consistency, calling for future studies to improve the psychometric performance of the LSRP (e.g., Christian & Sellbom, 2016). It should also be noted that the low internal consistency values of the Callousness and Antisocial scale scores might not exclusively be due to scale-specific problems. Given that internal consistency is a function of the scale items and the population that is administered the scale (American Educational Research Association, American Psychological Association, National Council on Measurement in Education, & Joint Committee on Standards for Educational and Psychological Testing, 2014), the fact that our sample was nonclinical and the likely range restriction associated with relatively low levels of psychopathic traits in community samples might have had an impact on internal consistency estimates. However, this is only a possible explanation, and not one that could be formally tested due to the lack of normative data for the Dutch LSRP. Inspection of factor loadings revealed that one item belonging to the Antisocial factor (“When frustrated, I often let off steam by blowing my top”) had a relatively weaker association with the latent factor. Future studies seem needed to elucidate whether this might represent a cultural issue or a problem with the translation of this item. Alternatively, due to the small factor loading and the fact that this item had correlated error terms with the item “I have been in a lot of shouting matches with other people” across different studies (e.g., Sellbom, 2011), it might be considered (pending replication) that this item be removed from the LSRP in future revisions of the scale, at least in its Dutch version (as the factor loading was larger in prior studies; e.g., Sellbom, 2011). Relatedly, future revisions might also consider reevaluating the appropriateness of using the label “Antisocial” for the LSRP factor comprising these two items and three others (see **Table 4**), as neither of them appear to represent direct indicators of antisocial tendencies.

Results speaking to the construct validity of the LSRP total and scale scores were mostly in accordance with conceptual expectations. First, the LSRP total score had the strongest correlation with the SRP total and scale scores, with a relatively weaker association with the Antisocial factor, consistent with the absence of items capturing antisocial behavior in the LSRP. The correlates of the LSRP total score seem to indicate that the LSRP conceptualizes psychopathy as fundamentally linked to antagonistic tendencies and self-centeredness (e.g., antisocial behavior, attitudes toward infidelity, moral disengagement). The LSRP total score also had significant associations with borderline and narcissistic personality disorder traits, poor self-control and identity integration, and problems in relational functioning. This pattern of findings highlights the maladaptive nature of psychopathic traits as operationalized in the LSRP. In relation to basic personality traits, the LSRP showed significant negative associations with conscientiousness and agreeableness (at least as assessed with the Sympathetic/Warm item), in keeping with prior studies (Lynam & Miller, 2015), and also showed a significant negative association with emotional stability (for a discussion on the role of emotional stability in psychopathy, see Crego & Widiger, 2015). Further, LSRP total score was inversely related to altruistic tendencies, but unrelated to the frequency of self-reported altruistic behavior, as found in previous studies (Patrick, Edens, Poythress, Lilienfeld, & Benning, 2006; Smith et al., 2013). In line with a meta-analysis (Ray et al., 2013), the LSRP also showed a moderate negative relation with social desirability. Moreover, as predicted by Levenson et al. (1995), LSRP psychopathy was unrelated to heroism.

Results of multiple regression analyses examining the unique contribution of each LSRP factor in predicting scores on the external correlates—while controlling for the shared variance among LSRP factors—revealed a rather distinct pattern of associations. Egocentricity was the strongest predictor of all SRP scale scores, as well as the only unique predictor for both the interpersonal and affective facets of the SRP. Egocentricity was also the only predictor of moral disengagement, but was unrelated to morality in multiple regression analyses (despite significant bivariate association). These and the other correlates of Egocentricity appear to suggest that Egocentricity captures the bulk of psychopathic traits, and mostly relates to features defining a self-centered, entitled, grandiose, and antagonistic interpersonal style.

Despite its label, the Antisocial factor was only uniquely related to the lifestyle facet of the SRP, but not to the SRP antisocial facet, which is not entirely surprising considering the item content of the Antisocial factor items (i.e., personality traits rather than overt behavior). The Antisocial factor was also the strongest predictor of vulnerable narcissism and the only unique predictor of borderline personality traits, low conscientiousness, and low emotional stability, as typically found for the behavioral traits of psychopathy (Lynam & Miller, 2015; Sellbom et al., 2018). Overall, the correlates of the Antisocial factor were largely in line with Levenson et al.'s (1995) original description of secondary psychopathic traits, as well as with Hare's (2003) original PCL-R Factor 2, and

more broadly with recent descriptions of antisocial personality disorders (Wygant et al., 2016). That is, the Antisocial factor seems to capture psychopathic traits related to undercontrolled and unstable personality features including pervasive emotional and interpersonal disturbances, whose antisocial behavior manifest mostly in terms of relational aggression.

Our findings corroborated the value of dividing the Egocentricity and Callousness dimensions into separate factors, not only for modeling reasons, but also for the partly different nomological networks of the two scales (Sellbom et al., 2018). First, Callousness was uniquely related to the SRP total and antisocial facet scores. Next, it was related to low conscientiousness and low agreeableness (at least as assessed with the Sympathetic/Warm item), and problems in self- and interpersonal functioning (i.e., the five SIPP-SF domains). Interestingly, Callousness was the only unique predictor of physical aggression and low morality. Of note, the associations between psychopathic traits and these traits that are certainly relevant for the psychopathy construct (Glenn, Raine, & Schug, 2009; Neumann, Hare, & Newman, 2007) could have been obscured had we conflated the Egocentricity and Callousness items in one factor. Taken together, the Callousness factor seems to capture the more immoral and physically aggressive features of psychopathy.

None of the LSRP factors emerged as a unique predictor of rule breaking, despite a significant regression model, indicating that rule breaking was related to their shared variance (in line with the significant bivariate associations that all of the three LSRP scales had with rule breaking). Overall, inspection of the proportion of variance that LSRP scales explained in the correlates of interest revealed that LSRP had the strongest predictive power toward SRP total score, as would be expected. Consistent with the original construction of the scale for use in noninstitutionalized samples, the LSRP factors explained a relatively greater proportion of variance in the interpersonal, affective, and lifestyle facets, compared to the antisocial facet. An overview of the variance explained in other correlates appears to indicate that the LSRP operationalizes psychopathy as a blend of immorality or antagonism and poor self-control, placing more emphasis on a broader dissocial attitude than on overt antisocial behavior.

Notably, some expected associations were not supported by our results. For instance, it was surprising that LSRP Callousness was not uniquely related to the SRP affective facet, despite a significant zero-order association. Furthermore, Callousness was not related to grandiose narcissism. The absence of these associations is consistent with previously noted shortcomings of the Callousness scale, which fails to produce consistent associations with indexes of low empathy (Christian & Sellbom, 2016; Salekin et al., 2014; Sellbom, 2011). Therefore, it appears that if some limitations to the construct validity of the three-factor model of the LSRP exist, these are mostly due to the Callousness factor. However, it is also quite possible that some psychometric weaknesses limit the operationalization of this construct. The scale is short (4 items) and consists of reverse-coded items. A recent effort to expand on the LSRP has indicated that the



Callousness scale's psychometric characteristics can be substantially improved and provided for even further separation from the Egocentricity construct (Christian & Sellbom, 2016).

The findings reported here should be considered in light of important study limitations. First, we only relied on self-report measures, which could have inflated correlation results due to the spurious influence of common method variance. Second, our samples included only community participants, for the most part highly educated. Therefore, the generalizability of these findings to other populations should be made with caution. Specifically, ours was a convenience sample, with potential sources of dependencies for which we were unable to control, so future studies are needed to replicate our findings by using a more random sample selection. Third, the sample size of two of the three samples recruited was relatively small, although it has been shown that correlation coefficients become reasonably stable around 150 participants (Schonbrodt & Perugini, 2013). Finally, some of the measures employed contained a relatively small amount of items (most notably the TIPI to measure basic personality traits). Although this choice was necessary to allow a broader coverage of potential correlates without placing excessive burden on participants, it also comes with inevitable costs, such as the low internal consistency of some scales. However, because low internal consistency weakens correlations, this limitation places our findings on the conservative side, rather than implying a risk of overestimation.

These limitations notwithstanding, this study contributes to an increasing body of research on the internal structure and construct validity of the LSRP. In short, we showed that the Dutch translation of the LSRP is best modeled in a three-factor structure that comprises 19 of the original 26 LSRP items, and that the three factors generally demonstrate distinct patterns of associations that—despite some exceptions—are consistent with Levenson et al.'s (1995) conceptualization of psychopathy, as well as with more recent self-report measures of psychopathic traits.

## References

- American Educational Research Association, American Psychological Association, National Council on Measurement in Education, & Joint Committee on Standards for Educational and Psychological Testing (U.S.). (2014). *Standards for educational and psychological testing*. Washington, DC: AERA.
- Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *Journal of Personality and Social Psychology*, 71(2), 364–374. doi:10.1037/0022-3514.71.2.364
- Brinkley, C. A., Diamond, P. M., Magaletta, P. R., & Heigel, C. P. (2008). Cross-validation of Levenson's psychopathy scale in a sample of federal female inmates. *Assessment*, 15(4), 464–482. doi:10.1177/1073191108319043
- Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). New York, NY: Guilford.
- Burt, S. A., & Donnellan, M. B. (2009). Development and validation of the subtypes of antisocial behavior questionnaire. *Aggressive Behavior*, 35(5), 376–398. doi:10.1002/ab.20314
- Chabrol, H., Labeyrie, N., Rodgers, R. F., & Levenson, M. R. (2010). An exploratory study of the relations between psychopathic traits and depressive symptoms in a non-clinical sample of adolescents. *Revue Européenne de Psychologie Appliquée/European Review of Applied Psychology*, 60(3), 181–187. doi:10.1016/j.erap.2009.10.002
- Christian, E., & Sellbom, M. (2016). Development and validation of an expanded version of the three-factor Levenson self-report psychopathy scale. *Journal of Personality Assessment*, 98(2), 155–168. doi:10.1080/00223891.2015.1068176
- Clark, L., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7(3), 309–319. doi:10.1037/1040-3590.7.3.309
- Colins, O. F., Fanti, K., Salekin, R. T., & Andershed, H. (2016). Psychopathic personality in the general population: Differences and similarities across gender. *Journal of Personality Disorders*, 31(1), 49–74. doi:10.1521/pedi.2016.30.237
- Cooke, D. J., & Michie, C. (2001). Refining the construct of psychopathy: Towards a hierarchical model. *Psychological Assessment*, 13(2), 171–188. doi:10.1037//1040-3590.13.2.171
- Crego, C., & Widiger, T. A. (2015). Psychopathy and the DSM. *Journal of Personality*, 83(6), 665–677. doi:10.1111/jopy.12115
- Crowne, D. P., & Marlowe, D. (1960). A newscale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24(4), 349–354.
- De Backer, C. J., Fisher, M. L., Poels, K., & Ponnet, K. (2015). “Our” food versus “my” food. Investigating the relation between childhood shared food practices and adult prosocial behavior in Belgium. *Appetite*, 84, 54–60. doi:10.1016/j.appet.2014.09.022
- DeLisi, M., & Vaughn, M. G. (2015). Ingredients for criminality require genes, temperament, and psychopathic personality. *Journal of Criminal Justice*, 43(4), 290–294. doi:10.1016/j.jcrimjus.2015.05.005
- Garofalo, C., Bogaerts, S., & Denissen, J. (2018). Personality functioning and psychopathic traits in child molesters and violent offenders. *Journal of Criminal Justice*, 55, 80–87. doi:10.1016/j.jcrimjus.2018.02.003
- Glenn, A. L., Raine, A., & Schug, R. A. (2009). The neural correlates of moral decision-making in psychopathy. *Molecular Psychiatry*, 14(1), 5–6. doi:10.1038/mp.2008.104
- Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., & Gough, H. C. (2006). The International Personality Item Pool and the future of public-domain personality measures. *Journal of Research in Personality*, 40(1), 84–96. doi:10.1016/j.jrp.2005.08.007
- Gordts, S., Uzieblo, K., Neumann, C., Van den Bussche, E., & Rossi, G. (2017). Validity of the self-report psychopathy scales (SRP-III full and short versions) in a community sample. *Assessment*, 24(3), 308–325. doi:10.1177/1073191115606205
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the big-five personality domains. *Journal of Research in Personality*, 37(6), 504–528. doi:10.1016/s0092-6566(03)00046-1
- Hare, R. D. (1999). *Without conscience. The disturbing World of the psychopaths among us*. New York, NY: Guilford.
- Hare, R. D. (2003). *Manual for the psychopathy checklist-revised* (2nd ed.). Toronto, ON: Multi-Health System.
- Hare, R. D., & Neumann, C. S. (2008). Psychopathy as a clinical and empirical construct. *Annual Review of Clinical Psychology*, 4(1), 217–246. doi:10.1146/annurev.clinpsy.3.022806.091452
- Hermans, H. (1967). *Sociale Wenselijkheids Schaal, SW (Social Desirability Scale)*. Nijmegen, NL: University of Nijmegen.
- Hofmans, J., Kuppens, P., & Allik, J. (2008). Is short in length short in content? An examination of the domain representation of the ten item personality inventory scales in Dutch language. *personality and individual differences*, 45(8), 750–755. doi:10.1016/j.paid.2008.08.004
- Hoppenbrouwers, S. S., Neumann, C. S., Lewis, J., & Johansson, P. (2015). A latent variable analysis of the psychopathy checklist-revised and behavioral inhibition system/behavioral activation system factors in North American and Swedish offenders. *Personality Disorders: Theory, Research, and Treatment*, 6(3), 251–260. doi:10.1037/per0000115
- Jackman, M. (2015). Understanding the cheating heart: What determines infidelity intentions?. *Sexuality & Culture*, 19(1), 72–84. doi:10.1007/s12119-014-9248-z



- Jansen, K., Sijtsma, J., Klimstra, T. A., & Denissen, J. (2018). Moral Disengagement in youth: The importance of assessing multiple dimensions. *Merrill-Palmer Quarterly*, 61(1), 1–9.
- Karpman, B. (1948). The myth of the psychopathic personality. *The American Journal of Psychiatry*, 104(9), 523–534.
- Kline, R. B. (2015). *Principles and practice of structural equation modeling* (4th ed.). New York, NY: Guilford Press.
- Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology*, 68(1), 151–158. doi:10.1037/0022-3514.68.1.151
- Lilienfeld, S. O. (1998). Fearlessness, antisocial behavior, and heroism. Unpublished manual.
- Lilienfeld, S. O., & Fowler, K. A. (2006). The self-report assessment of psychopathy: Problems, pitfalls, and promises. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 107–132). New York, NY: Guilford.
- Lilienfeld, S. O., Latzman, R. D., Watts, A. L., Smith, S. F., & Dutton, K. (2014). Correlates of psychopathic personality traits in everyday life: results from a large community survey. *Frontiers in Psychology*, 5, 740. doi:10.3389/fpsyg.2014.00740
- Little, T. D. (2013). *Longitudinal structural equation modeling*. New York, NY: Guilford Press.
- Lynam, D. R., & Miller, J. D. (2015). Psychopathy from a basic trait perspective: The utility of a five-factor model approach. *Journal of Personality*, 83(6), 611–626. doi:10.1111/jopy.12132
- Marsh, H. W., Hau, K. T., & Grayson, D. (2005). Goodness of fit in structural equation models. In A. Maydeu-Olivares & J. J. McArdle (Eds.), *Contemporary psychometrics: A festschrift for Roderick P. McDonald* (pp. 275–340). Mahwah, NJ: Erlbaum.
- Miller, J. D., Gaughan, E. T., Maples, J., Gentile, B., Lynam, D. R., & Widiger, T. A. (2011). Examining the construct validity of the elemental psychopathy assessment. *Assessment*, 18(1), 106–114. doi:10.1177/1073191110393139
- Miller, J. D., Gaughan, E. T., & Pryor, L. R. (2008). The Levenson self-report psychopathy scale: an examination of the personality traits and disorders associated with the LSRP factors. *Assessment*, 15(4), 450–463. doi:10.1177/1073191108316888
- Mokros, A., Hare, R. D., Neumann, C. S., Santtila, P., Habermeyer, E., & Nitschke, J. (2015). Variants of psychopathy in adult male offenders: A latent profile analysis. *Journal of Abnormal Psychology*, 124(2), 372–386. doi:10.1037/abn0000042
- Muthén, L. K., & Muthén, B. O. (2013). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.
- Neumann, C. S., Hare, R. D., & Newman, J. P. (2007). The super-ordinate nature of the psychopathy checklist-revised. *Journal of Personality Disorders*, 21(2), 102–117. doi:10.1521/pedi.2007.21.2.102
- Neumann, C. S., Vitacco, M. J., & Mokros, A. (2016). Using both variable-centered and person-centered approaches to understanding psychopathic personality. In C. B. Gacono (Ed.), *The clinical and forensic assessment of psychopathy: A practitioner's guide* (pp. 14–31). Chichester, UK: Routledge.
- Patrick, C. J., Edens, J. F., Poythress, N. G., Lilienfeld, S. O., & Benning, S. D. (2006). Construct validity of the psychopathic personality inventory two-factor model with offenders. *Psychological Assessment*, 18(2), 204–208. doi:10.1037/1040-3590.18.2.204
- Patrick, C. J., Fowles, D. C., & Krueger, R. F. (2009). Triarchic conceptualization of psychopathy: developmental origins of disinhibition, boldness, and meanness. *Development and Psychopathology*, 21(03), 913–938. doi:10.1017/S0954579409000492
- Paulhus, D. L., Neumann, C. S., & Hare, R. D. (2016). *Manual of the Hare Self-Report Psychopathy scale*. Toronto, ON: Multi-Health Systems.
- Pincus, A. L., Ansell, E. B., Pimentel, C. A., Cain, N. M., Wright, A. G., & Levy, K. N. (2009). Initial construction and validation of the pathological Narcissism inventory. *Psychological Assessment*, 21(3), 365–379. doi:10.1037/a0016530
- Ray, J. V., Hall, J., Rivera-Hudson, N., Poythress, N. G., Lilienfeld, S. O., & Morano, M. (2013). The relation between self-reported psychopathic traits and distorted response styles: A meta-analytic review. *Personality Disorders: Theory, Research, and Treatment*, 4(1), 1–14. doi:10.1037/a0026482
- Risser, S., & Eckert, K. (2016). Investigating the relationships between antisocial behaviors, psychopathic traits, and moral disengagement. *International Journal of Law and Psychiatry*, 45, 70–74. doi:10.1016/j.ijlp.2016.02.012
- Rossi, G., De Weerd, M., Page, D., Hennequene, E., Derksen, J., & Pincus, A. (2012). *Dutch translation of the PNI: PNI-NL*. Bruxelles, BE: Vrije Universiteit Brussel.
- Rossi, G., Debast, I., & van Alphen, S. P. (2016). Measuring personality functioning in older adults: Construct validity of the severity indices of personality functioning – short form (SIPP-SF). *Aging & Mental Health*, 21(7), 703–711. doi:10.1080/13607863.2016.1154012
- Rushton, J. P., Chrisjohn, R. D., & Fekken, G. C. (1981). The altruistic personality and the self-report altruism scale. *Personality and Individual Differences*, 2(4), 293–302. doi:10.1016/0191-8869(81)90084-2
- Salekin, R. T., Chen, D. R., Sellbom, M., Lester, W. S., & MacDougall, E. (2014). Examining the factor structure and convergent and discriminant validity of the Levenson self-report psychopathy scale: is the two-factor model the best fitting model? *Personality Disorders: Theory, Research, and Treatment*, 5(3), 289–304. doi:10.1037/per0000073
- Schonbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize? *Journal of Research in Personality*, 47(5), 609–612. doi:10.1016/j.jrp.2013.05.009
- Sellbom, M. (2011). Elaborating on the construct validity of the Levenson self-report psychopathy scale in incarcerated and non-incarcerated samples. *Law and Human Behavior*, 35(6), 440–451. doi:10.1007/s10979-010-9249-x
- Sellbom, M., Lilienfeld, S., Fowler, K. A., & McCray, K. L. (2018). The self-report assessment of psychopathy: Challenges, pitfalls, and promises. In C. Patrick (Ed.), *Handbook of psychopathy* (2nd ed.). New York, NY: Guilford Press.
- Shou, Y., Sellbom, M., & Han, J. (2017). Evaluating the Construct Validity of the Levenson Self-Report Psychopathy Scale in China. *Assessment*, 24(8), 1008–1023. doi:10.1177/1073191116637421
- Sijtsma, J., Lindenberg, S., Ojanen, T., & Salmivalli, C. (2018). Direct aggression and the balance between status and affection goals throughout the lifespan. Manuscript submitted for publication.
- Smith, S. F., Lilienfeld, S. O., Coffey, K., & Dabbs, J. M. (2013). Are psychopaths and heroes twigs off the same branch? Evidence from college, community, and presidential samples. *Journal of Research in Personality*, 47(5), 634–646. doi:10.1016/j.jrp.2013.05.006
- Somma, A., Fossati, A., Patrick, C., Maffei, C., & Borroni, S. (2014). The three-factor structure of the Levenson self-report psychopathy scale: fool's gold or true gold? A study in a sample of Italian adult non-clinical participants. *Personality and Mental Health*, 8(4), 337–347. doi:10.1002/pmh.1267
- Tsang, S., Salekin, R. T., Coffey, C. A., & Cox, J. (2017). A comparison of self-report measures of psychopathy among nonforensic samples using item response theory analyses. *Psychological Assessment*, 30(3), 311–327. doi:10.1037/pas0000481
- Uzieblo, K., Verschuere, B., & Crombez, G. (2006). *The Dutch translation of Levenson's Self Report of Psychopathy*. Ghent, Belgium: University of Ghent.
- Uziel, L. (2010). Rethinking social desirability scales: from impression management to interpersonally oriented self-control. *Perspectives on Psychological Science*, 5(3), 243–262. doi:10.1177/1745691610369465
- Verheul, R., Andrea, H., Berghout, C. C., Dolan, C., Busschbach, J. J. V., van der Kroft, P. J. A., ... Fonagy, P. (2008). Severity indices of personality problems (SIPP-118): Development, factor structure, reliability, and validity. *Psychological Assessment*, 20(1), 23–34. doi:10.1037/1040-3590.20.1.23
- Verschuere, B., & Tibboel, H. (2011). The Dutch version of the McLean Screening Instrument for borderline personality disorder (MSI-BPD). *Psychologie & Gezondheid*, 39(4), 243–248.
- Verschuere, B., Uzieblo, K., De Schryver, M., Douma, H., Onraedt, T., & Crombez, G. (2014). The inverse relation between psychopathy and faking good: Not response bias, but true variance in psychopathic personality. *The Journal of Forensic Psychiatry & Psychology*, 25(6), 705–713. doi:10.1080/14789949.2014.952767
- Vitacco, M. J., Neumann, C. S., & Jackson, R. L. (2005). Testing a four-factor model of psychopathy and its association with ethnicity,

- gender, intelligence, and violence. *Journal of Consulting and Clinical Psychology*, 73(3), 466–476. doi:[10.1037/0022-006X.73.3.466](https://doi.org/10.1037/0022-006X.73.3.466)
- Wang, M.-C., Shou, Y., Deng, Q., Sellbom, M., Salekin, R. T., & Gao, Y. (2018). Factor structure and construct validity of the Levenson self-report psychopathy scale (LSRP) in a sample of Chinese male inmates. *Psychological Assessment*, 30(7), 882–892. doi:[10.1037/pas0000537](https://doi.org/10.1037/pas0000537).
- Wright, A. G., Lukowitsky, M. R., Pincus, A. L., & Conroy, D. E. (2010). The higher order factor structure and gender invariance of the pathological Narcissism inventory. *Assessment*, 17(4), 467–483. doi:[10.1177/1073191110373227](https://doi.org/10.1177/1073191110373227)
- Wygant, D. B., Sellbom, M., Sleep, C. E., Wall, T. D., Applegate, K. C., Krueger, R. F., & Patrick, C. J. (2016). Examining the DSM-5 alternative personality disorder model operationalization of antisocial personality disorder and psychopathy in a male correctional sample. *Personality Disorders: Theory, Research, and Treatment*, 7(3), 229–239. doi:[10.1037/per0000179](https://doi.org/10.1037/per0000179).
- Zanarini, M. C., Vujanovic, A. A., Parachini, E. A., Boulanger, J. L., Frankenburg, F. R., & Hennen, J. (2003). A screening measure for BPD: The McLean screening instrument for borderline personality disorder (MSI-BPD). *Journal of Personality Disorders*, 17(6), 568–573. doi:[10.1521/pedi.17.6.568.25355](https://doi.org/10.1521/pedi.17.6.568.25355)